POINT	LATITUDE	LONGITUDE
Aiming Circle	9° 27′ 02″	48° 28′ 32″
Distant Aiming Point 1	9° 27′ 36″	48° 28′ 53″
Distant Aiming Point 2	9° 26′ 30″	48° 28′ 20″

Table 1

Longitude of distant aiming point 1	48° 28′ 53″
Longitude of aiming circle	-48° 28′ 32″
Difference in longitude	21″
Latitude of distant aiming point 1	9° 27′ 36″
Latitude of aiming circle	-9° 27′ 02″
Difference in latitude	34″

Table 2

For example, the platoon leader does a map reconnaissance and finds three points that he will use to declinate his aiming circles (Figure 4). Using the *Trigliste* for the area, he determines the longitude and latitude for the points (see Table 1).

He superimposes these points on a grid with the aiming circle at the center, and constructs right triangles with the aiming circle being the angle opposite the right angle. He labels the sides and the aiming circle angle as outlined in Figure 5.

Using distant aiming point 1, the platoon leader then determines the differences in longitude and latitude between this point and the aiming circle by subtracting the smaller longitude from the larger and then repeats the step for the latitudes (Table 2).

The difference in longitude is the length of side A in seconds and the difference in latitude the length of side B. Side A (21″) divided by side B (34″) gives the tangent of angle C—0.617647.

The platoon leader then uses a standard trigonometric table or a calculator with trig functions to determine the relationship of TAN 0.617647, which is 31.7 degrees. When this figure is multiplied by 17.7778 (mils per degree), the result will be angle C in mils—563.556. (He uses the same procedure to find angle C for distant aiming point 2.)

These are the mil relationships between the distant aiming points and the cardinal directions used in constructing the right triangles. Once the platoon leader knows both angles, he figures the mil relationships between the distant aiming points and grid north on the basis of the quadrant the aiming point falls into.

Using the rules given previously, the platoon leader subtracts the mil angle for distant aiming point 1 from 1600 (since the distant aiming point is in quadrant I): 1600 minus 563.556 equals 1036.444 mils. He subtracts the mil angle for distant aiming point 2 from 4800 since it is in quadrant III.

His final task is to apply the declination constant from the map to convert the mil relationships between the distant aiming points and grid north to the relationships between these points and magnetic north. The results are the mil angles that he can use in declinating his aiming circles.

Mortar platoons do not have to use aiming circles for all fire missions, of course. In combat there will be times when the need to declinate the aiming circle is outweighed by the need to lay in the guns and fire a mission as rapidly as possible using the aiming circles "as they are." But a declinated aiming circle is analogous to a zeroed rifle and will increase the effectiveness of the mortars, the battalion commander's only indirect fire support.

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"Please Use Me!"

The Cry of A Mortar Platoon Leader

LIEUTENANT RENE G. BURGESS

Let's say you're a brand new light infantry mortar platoon leader, intent upon making your platoon an integral part of the battalion combat team. Your men are trained and competent, your fire direction center (FDC) is fast and accurate, and you have more vehicles and radios than you ever expect to need. Given a light infantry battalion's limited fire power, you expect to hear your radios crackling with calls for fire, but you go through a battalion-sized infiltration or attack

with only one or two fire missions. When you question your soldiers, you learn that they have been called only two or three times for fire missions during the past several field problems.

Or perhaps you're a light infantry battalion commander or a battalion S-3. Your experience and professional reading have reinforced your belief that your most responsive fire support in combat will be the battalion heavy mortar platoon. You are therefore quite frustrated to learn that the mortars are seldom used in training exercises.

The 3d Battalion, 9th Infantry Regiment, 7th Infantry Division (Light) completed a 14-day rotation through the National Training Center (NTC) at Fort Irwin, California, a few months ago. The aggressive, highly trained opposing forces (OPFOR) regiment and the unforgiving mountainous desert terrain were formidable opponents, and the technology available at the NTC provided an accurate picture of how well the unit fared in each battle.

As the battalion's mortar platoon leader, I experienced the frustrations of being neglected for the first half of our rotation. During the second half, however, the 81mm mortar platoon answered about 60 fire calls and expended more than 1,000 simulated rounds. This drastic increase in utilization was a result of an aggressive "Let's make it work" attitude on the part of the battalion combat team, an attitude facilitated by the NTC's after action reviews at the completion of each major mission.

The NTC has become the Army's most advanced training evaluation system through its network of computer-monitored position locators (one per platoon or section), observer-controllers (OCs) to assess casualties and take notes, fire markers for mortar and artillery fires, and computer-monitored MILES equipment on every soldier or vehicle. Each battle is run nonstop under the NTC rules of engagement, which allow for chemical and indirect fire casualties (through the main computer and the OCs), direct fire casualties (through the use of MILES and the OCs), and casualty evacuation play (with casualty cards handed out by the OCs).

The infantry mortar platoon needs to be an integral part of the battalion combat team.

At the conclusion of each battle, the key players are brought into an after action review trailer where the battle can be replayed on a large-screen computer. The entire planning process is carefully examined and explained by everyone involved. Following this, the battle is replayed on the screen, with position locators showing the exact locations of units, as unit commanders explain their actions and thought processes. Each after action review ends with the statistics—the number of friendly and enemy forces killed or wounded, the method by which they were killed or wounded, the number of rounds fired, and the effectiveness of each major weapon system.

This process of accurately re-creating and examining each battle led our battalion, as a unit, to learn to improve daily. It also allowed the battalion commander to identify any weak points in our fire support network and to take the steps necessary to ensure that the system would work the next day. Through this daily refining of mortar platoon SOPs, the staff planning process, and the fire support control measures, we were able to move forward rapidly to deliver effective fire support and to change my own battle cry from "Please use me" to "I need more ammunition!" The major factors that contributed to this turnabout were an increased emphasis on communication, a closer coordination with the maneuver element commanders and their fire support officers (FSOs), and the integration of the mortar platoon leader into the staff planning process.

The problem of effective communication is one that is seldom addressed be-

cause of its deceptive simplicity—"Stay awake, stay on the radio, stay on the right frequency, and all of your communication problems will disappear." Unfortunately, effective communication for a battalion mortar platoon is much more than having working radios on the right frequency.

A light infantry mortar platoon normally operates in two sections for survivability. Each section has two gun squads with vehicular radios and a fire direction element with three vehicular radios (one of which can receive only), one AN/PRC-77 radio, and one OE-254 antenna. (During resupply operations, one section loses one vehicular radio, but this rarely hampers that section's ability to respond to fire missions.)

The problem then is not a lack of equipment but the improper management of equipment. On any extended exercise, a certain percentage of a unit's radios are going to go down. It is critical, therefore, that each mortar platoon have the flexibility and technical expertise to move good radios to key vehicles, with the bad radios being taken to the combat trains during normal resupply operations.

Equipment malfunctions aside, the key to effective communication is leader involvement at every level. Leaders must ensure that radio checks are conducted at least hourly with all maneuver element FSOs and with the battalion fire support element (FSE), and that these checks and all fire calls are recorded in a logbook in the FDC. This provides a written record of exactly which units are in contact with the FDC and allows the senior man in each FDC to use alternate channels, either the battalion or the company radio net, to alert a company commander when his FSO is not in contact with the FDC. We found that poor communications frequently could be fixed with something as simple as a new battery, but it took that call on another net to alert a unit that there was indeed a problem.

There are hardly any communication problems that an aggressive, innovative leader cannot fix. The responsibility for good communications rests squarely upon the shoulders of the senior leader present, not upon those of the private on radio watch. During our exercises at the NTC, once leaders at every level became actively involved in communications, significantly more fire support was provided.

The second step on our ascent to effective fire support was a significant increase in the number of coordinations we had with the maneuver element commanders and their FSOs. On some previous missions, for instance, the mortar platoon had not been called because of misconceptions about such matters as its location, range, and capabilities. It quickly became obvious that the flow of information between the mortar platoon leader and the rifle company commanders had to be an ongoing exchange of locations, times, maneuver plans, and expected enemy activity.

ADVISOR ROLE

A mortar platoon leader is responsible for advising the battalion commander on his fire support plan. Because of the decentralization and dispersion in a light infantry battalion, it makes sense for the mortar platoon leader also to advise and make recommendations to the company commanders or FSOs on their fire support plans. Thus, the mortar platoon leader lets each company commander know when that company will be in range, where the mortar platoon will be, the ammunition available, the effects of smoke or illumination rounds, and the support the commander can expect from the 81mm mortar platoon. This not only provides mission essential information but also increases each commander's confidence in the mortar platoon.

If a company commander in contact knows that the supporting mortars are in range, that they are aware of his mission, and that they are expecting to be called (from their monitoring of the battalion net), he is much more likely to yell for his FSO to "Get me some 81s!" than to rely upon an outside unit that may or may not be able to respond.

The main advantages of a battalion mortar platoon are its flexibility, its speed, its high rate of fire, and the fact that it is an organic unit that supports only one battalion. A peacetime mortar platoon leader must constantly "sell" these advantages until the automatic response of each company commander is to call the unit that will best support him in combat.

Perhaps the most significant factor that led to the successful use of our battalion's mortar platoon at the NTC was the integration of the mortar platoon leader into the staff planning process. Immediately upon receipt of each warning order or operations order from higher headquarters, the battalion executive officer would assemble the battle staff to wargame the mission and then present several possible maneuver schemes to the battalion commander. The commander would select a preferred course of action, and the battle staff would develop that plan using the staff planning process, making the modifications needed to match the commander's intent with the intelligence plan of the battle.

The time constraints at the NTC were severe, with operations orders or fragmentary orders coming down to battalion level as little as three or four hours before a mission. By the midway point in our rotation, the planning cycle had necessarily been condensed enough to allow for the preparation of a battalion operations order in just over two hours. A key factor in the presentation of a workable operations order in so little time was the inclusion of every member of the combined arms team in the battle staff. The mortar platoon leader (along with the rest of the battle staff) was briefed by the battalion S-3 on the commander's intent and a rough scheme of maneuver. The S-3 was then able to concentrate on other phases of the planning process while the mortar platoon leader prepared a tentative fire support plan for the 81mm mortar platoon.

The mortar platoon leader worked closely with the battalion FSO to ensure that this plan was in keeping with the FSO's concept of the battalion fire support plan and that they agreed on fire control measures and ammunition loads. The mortar platoon leader then back-briefed the battalion S-3 on his preferred scheme of maneuver and two alternate plans. When one of these was approved by the battalion S-3, the XO, and the commander, it was incorporated into the battalion OPORD. The advantage of this system was that it allowed the battalion "mor-

tar expert'' to devote his full attention to the employment of his weapon systems and freed the S-3 and the battalion FSO to devote their attention to the numerous other tasks they had to accomplish before completing the OPORD.

The mortar platoon leader simply cannot wait for the battalion operations order to be published to find out where he is going to be during an operation. Not only is he more likely to understand how to employ his platoon if he learns earlier, but he also needs the time after the OPORD is issued to conduct the necessary coordination with company commanders and FSOs. Our most successful employment of the mortar platoon occurred at the NTC when this planning process was implemented.

The under-utilization of the mortar platoon, which is mentioned so frequently by mortar platoon leaders, can be cured by an aggressive policy of establishing and maintaining communications, by in-depth coordination between the mortar platoon and each maneuver element commander and FSO, and by the integration of the mortar platoon leader into the staff planning process before the battalion operations order is issued. A light infantry battalion cannot afford to ignore its most responsive indirect fire asset. It is therefore essential for every mortar platoon leader, battalion S-3, and battalion commander to take the necessary steps to ensure that the way their mortars are used in peacetime will lead to victory on the battlefield of tomorrow.

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Coordination Trip

For An Off-Post Deployment

CAPTAIN STEVEN D. CAGE

A planned off-post deployment is a precious training opportunity for any infantry battalion. Such a deployment may allow a unit to train in a specific course of instruction, in a different environment or terrain, or just somewhere away from the routine distractions at its homebase. To deploy successfully, a battalion must do a great deal of planning and preparation. This process can be made easier by a well thought-out and executed coordination trip in advance.

A coordination trip is normally conducted (depending on unit SOP) anywhere from 90 to 120 days before the unit's deployment date. The purpose of this trip is to reinforce the initial requests the battalion's project officer has made and the coordination he has started with a personal visit by representatives of the various staff sections in the battalion. The unit may specify who goes, or it may have an SOP covering it; at the least, S-3 and S-4 representatives should go. (They can conduct coordination for the S-1, S-2, and S-5 sections, if necessary.)

Ideally, the selected unit representatives (UREPs) will have been serving as their staff sections' project officers or noncommissioned officers and are familiar with the planning and coordination that has already been done. If they are new to the project, however, they should be fully briefed before taking up their duties.

UNDERSTANDING

Once the UREPs have been chosen, they must become fully conversant with the commander's intent. The initial presentation should be given by either the commander or the executive officer. An understanding of the commander's intent is the most important tool the UREPs can take on the trip; with it, they can sort through all kinds of potential problems or plans that may not quite come out the way they have been coordinated by telephone or mail. In addition, the UREPs can proceed even if the requested training areas are denied, because they will know what the boss wants to do. If it turns out that the location will not meet the standards required, for example, or if the planned training cannot be executed within the framework of the commander's intent, the UREPs can advise him so that the unit's deployment training can be modified or cancelled.

Once the commander's intent is understood, ideally covering all aspects of training and logistics, the UREPs can make their travel arrangements, familiarize themselves with the project to date, get their notebooks, and go.

Most unit deployments that require coordination trips are one of two types: an insertion into and extraction from the field with little or no time in garrison or cantonment area (such as an EDRE followed by an ARTEP), or time in the field or in classes but working out of a cantonment area (such as the Joint Operations Training Center at Fort Sherman, for example).

Both types of deployment primarily re-